	Application No.	Applicant(s)	
Notice of Allowability	09/967,084	BEIER ET AL.	
	Examiner	Art Unit	
	Michael Y. Won	2155	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *amendment filed March 12, 2007 and Interview conducted on April 26, 2007*.

2. ☒ The allowed claim(s) is/are *1-10 and 22-32 (renumbered 1-21)*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a) ☐ All   b) ☐ Some*   c) ☐ None   of the:

   1. ☐ Certified copies of the priority documents have been received.

   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

   Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
   THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

   1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____ .

   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____

4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application

6. ☒ Interview Summary (PTO-413), Paper No./Mail Date *attached* .

7. ☒ Examiner's Amendment/Comment

8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____ .

EXAMINER'S AMENDMENT

1.   An examiner's amendment to the record appears below. Should the changes

and/or additions be unacceptable to applicant, an amendment may be filed as provided

by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be

submitted no later than the payment of the issue fee.

2.   Authorization for this examiner's amendment was given in a telephone interview

with Gordon R. Lindeen III (Reg. No. 33,192) on April 26, 2007.

3.   The application has been amended as follows:

In the **specification**, on page 7:

[0020] The present invention may be provided as a computer program product

that may include a machine-readable medium having stored thereon instructions

that may be used to program a computer (or other electronic devices) to perform

a process according to the present invention. The machine-readable medium

may include, but is not limited to, floppy diskettes, optical disks, compact disc

read-only memories (CD-ROMs), and magneto-optical disks, ROMs, random

access memories (RAMs), erasable programmable read-only memories

(EPROMs), electrically erasable programmable read-only memories

(EEPROMs), magnetic or optical cards, flash memory, or other type of media /

machine-readable medium suitable for storing electronic instructions. Moreover,

the present invention may also be downloaded as a computer program product,

wherein the program may be transferred from a remote computer (e.g., a server)

to a requesting computer (e.g., a client) by way of data signals embodied in a

carrier wave or other propagation medium via a communication link (e.g., a

modem or network connection). ~~Accordingly, a carrier wave or other propagation~~

~~medium shall be regarded as comprising a machine-readable medium for the~~

~~purpose of the present specification.~~

In the **claims**:

1. **(Currently Amended)** A method comprising:

receiving a packet at a network device, the packet including a header and a

payload;

tagging the packet, by a first packet-processing application, with a cache lookup

key based upon original contents of the header, the cache lookup key indicating where

in a unified cache a cache entry corresponding to the packet will be stored, the cache

lookup key being stored in a field of the unified cache, and the cache lookup key being

part of a packet descriptor of the packet;

translating the header of the packet from the original contents by an address

translation packet-processing application after tagging the packet;

forwarding the packet descriptor and the packet to a second packet processing

application after translating the header; and

the second packet-processing application accessing the cache entry from the

unified cache using the cache lookup key from the packet descriptor added by the first

packet processing application, wherein the unified cache is shared by multiple packet

forwarding processes and allows a flow to be classified once and then subsequent

packets can be processed with a single lookup in the unified cache.

8. **(Currently Amended)** A method comprising the steps of:

a step for determining whether a cache lookup key is present in a packet

descriptor associated with a received packet;

a step for performing a lookup in a unified cache with the cache lookup key if it is

determined that the cache lookup key is present in the packet descriptor;

a step for creating a new cache entry in the unified cache based upon

information in a header of the received packet and tagging the packet with a new cache

lookup key if it is determined that the cache lookup key is not present in the packet

descriptor or the lookup does not locate an appropriate existing cache entry, the new

cache lookup key being based upon contents of the header of the packet;

a step for storing the new cache lookup key in a field of the unified cache;

a step for conveying the cache lookup key from the from a NAT packet-

processing task to a packet filtering packet-processing task;

a step for updating an existing cache entry with module-specific information by

the NAT packet processing task, the updating including translating the header of the

packet; and

a step for accessing the new cache entry from the unified cache by the packet-

filtering packet processing task using the cache lookup key, after translating the header,

wherein the unified cache is shared by multiple packet forwarding processes and allows

a flow to be classified once and then subsequent packets can be processed with a

single lookup in the unified cache.

22. **(Currently Amended)** A ~~tangible article of manufacture in the form of a~~

machine-readable medium having stored thereon data representing instructions that, if

executed by one or more processors of a network device, cause the one or more

processors to:

receive a packet including a header and a payload;

tag the packet, by a first packet-processing application of a plurality of packet-

processing applications, with a cache lookup key based upon original contents of the

header, the cache lookup key indicating where in a unified cache a cache entry

corresponding to the packet will be stored;

the cache lookup key being stored in a field of the unified cache, and the cache

lookup key being part of a packet descriptor of the packet;

translate the header of the packet from the original contents by an address

translation packet-processing application after tagging the packet;

forward the packet descriptor and the packet to a second packet processing

application after translating the header; and

use the cache lookup key from the packet descriptor rather than generating a

new cache lookup key based upon current contents of the header by a second

application accessing the cache entry from the unified cache subsequent to the tagging

by the first packet-processing application, wherein the unified cache is shared by

multiple packet forwarding processes and allows a flow to be classified once and then

subsequent packets can be processed with a single lookup in the unified cache.

Allowable Subject Matter

4.   Claims 1-10 and 22-32 are allowable over prior art of record and in light of

Examiner's Amendments and arguments presented in Amendment filed March 12,

2007.

5.   The following is an examiner's statement of reasons for allowance:

The prior art of record does not disclose, teach, or suggest neither singly nor in

combination the claimed limitation of "second packet-processing application accessing

the cache entry from the unified cache using the cache lookup key from the packet

descriptor added by the first packet processing application, wherein the unified cache is

shared by multiple packet forwarding processes and allows a flow to be classified once

and then subsequent packets can be processed with a single lookup in the unified

cache" as recited in independent claim 1 and similarly recited in independent claims 8 and 22.

6.   Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."
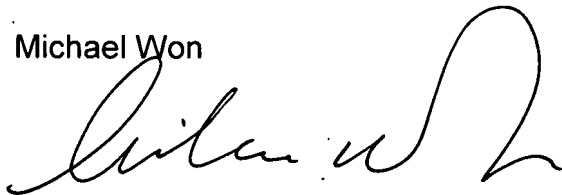
7.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Y. Won whose telephone number is 571-272-3993. The examiner can normally be reached on M-Th: 7AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Saleh Najjar can be reached on 571-272-4006. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Michael Won

April 26, 2007